

MARSHALL STAR

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NASA Administrator Sean O’Keefe visits Marshall; discusses IFMP, SLI and nuclear propulsion system

By Jonathan Baggs

Nuclear-powered spacecraft, the Space Launch Initiative and the Integrated Financial Management Program all were on NASA Administrator Sean O’Keefe’s mind during his visit to the Marshall Center last Wednesday and Thursday.

One other thing on O’Keefe’s mind was the work of Paul Munafo, manager of Marshall’s Materials, Processes and Manufacturing Department in the Engineering Directorate. O’Keefe presented Munafo with the NASA Outstanding Leadership Medal – one of the Agency’s highest awards. Munafo led a Marshall team that worked virtually non-stop from July 5 until finding a solution to welding cracks that grounded the Space Shuttle fleet.

Marshall Center Director Art Stephenson introduced O’Keefe to a packed audience in Morris Auditorium on Thursday, as well as several NASA associate administrators and officials who made the visit. O’Keefe met Wednesday with Marshall’s Integrated Financial Management



Photo by Doug Stoffer, NASA/Marshall Center

Paul Munafo, center, receives congratulations from Marshall Director Art Stephenson, left, and NASA Administrator Sean O’Keefe, right, after being awarded the NASA Outstanding Leadership Medal for his work on welding solutions to fix minute cracks in Space Shuttle flowlines.

Team and before his Center-wide address Thursday he met with Space Launch Initiative program officials and staff.

As he introduced O’Keefe at Thursday’s All-Hands meeting in

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Unique propulsion system boosts Chandra’s high-flying success

by Celeste Atkins

The challenge: Put the largest and one of the heaviest payloads ever into orbit.

Mission improbable: Get that huge, heavy payload known as NASA’s Chandra X-ray Observatory into an orbit 200 times higher than the Hubble Telescope.

Mission accomplished: Thanks to the

teamwork of scientists and engineers at the Marshall Center, The Boeing Company in Seattle, Wash., and TRW Space and Electronics group of Redondo Beach, Calif., who designed the integral propulsion system necessary to send Chandra one-third of the way to the Moon.

It was just over three years ago when the first amazing images from Chandra were seen. But when Marshall Center

engineers began plans to propel the 45 feet and nearly 11,000 pounds of mirror and metal into space, they chose a system known as the inertial upper stage propulsion system to launch the X-ray telescope from the Space Shuttle cargo bay into orbit. But, that was only half the battle.

Robert Sackheim, now assistant director and chief engineer of propulsion

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O'Keefe

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Morris Auditorium, Stephenson said, "I've been watching him as he's moved into NASA and taken the reins, in, what I think, is a very effective way. He is a gentleman and a person who listens to all the points of view and then he makes decisions. That's the kind of leadership that I think we've been looking for ... and have found in Sean O'Keefe."

After a standing ovation, O'Keefe said that he was glad to be back at Marshall "for the opportunity to get smarter on a variety of programs ... and some of the issues we've got to look at in order to make the decisions in the coming fiscal year 2004 budget presentations and to get ready to implement the fiscal year 2003 efforts here just weeks ahead."

O'Keefe told a packed audience in Morris Auditorium that he was committed to President Bush's "Freedom to Manage" program to eliminate outmoded procedures and inefficiency in government. Freedom to Manage also is part of O'Keefe's vision for making "One NASA" a reality.

He said the Freedom to Manage program was not "just a one-trick pony," but depends on all NASA team members taking on the obligation and opportunity to identify smarter ways of doing things. This will, in turn, create dialogue and an environment that fosters more respect for each other, instead of employees wondering why they are forced to do "dumb things" that seemingly have no purpose.

He reminded the audience that he had three basic principles for NASA to become "a truly great organization."

"First and foremost, you have to have an atmosphere, an agency — organizational institutional attitude — in which every person in it is treated with respect," O'Keefe said. "You treat each other the way you want to be treated."

O'Keefe said his second principle is, "You provide the resources necessary to carry out the tasks when you've been assigned the responsibility to do that particular objective."

"We went about defining what is NASA's mission," O'Keefe said, naming them: To understand and protect our home planet; to explore the universe and search for life; and to inspire the next generation of explorers.

"That's it. There they are," O'Keefe said. "The tag line at the end of those three mission objectives is 'as only NASA can.' Because, if somebody else can do it, then why are we going to waste the effort and energy in our primary objective — to be out

there doing cutting-edge stuff, to do things that nobody else can or wants to do, because that's ... where we really make our mark. That's what our history has been about and it's certainly what our future is going to be about."

How to apply this to O'Keefe's second principle?

O'Keefe said the most important initiative NASA is pursuing in fiscal year 2003 is the pursuit of the Nuclear Systems Initiative. While he said there are lots of other approaches to be pursued besides nuclear technology, and that those will be developed in time, nuclear technology currently is the "most mature" approach to traveling faster in space. "Let's pick the (technology) that is the most mature and get on with it," he said. "Let's get moving."

He noted the speed of the Space Shuttle in orbit is still only as

fast as the first Mercury space capsules could travel more than 40 years ago.

"We can't go anywhere terribly fast," O'Keefe said. "Now, 18,000 mph is pretty fast, no doubt. (But) 'Friendship 7' flew at these speeds. We're still doing the same thing."

Because of the current speed limitations, O'Keefe said it would take 50 years just to get to the edge of our own galaxy.

Marshall, Glenn (Research Center), JPL (Jet Propulsion Laboratory) — all of these historic centers will be playing a critical role in making (nuclear

propulsion) happen collaboratively as a 'One NASA' objective," O'Keefe said. He added that it was an opportunity for NASA not only to "step up and improve its credibility, but really a chance to improve our capacity to do what we say we are all about on the exploration and discovery objectives."

O'Keefe said another example of his "One NASA" concept is the approach and collaboration of the Space Launch Initiative team at Marshall and at NASA's other centers. The Space Launch Initiative is exploring new space transportation architectures and technologies.

This led O'Keefe into his third principle — to ensure that "someone notices" what NASA is doing. He cited the Integrated Financial Management Program as a critical example.

"All of what we do has consequences," he said. "People notice what we do. What the IFMP team here at Marshall, and indeed throughout the agency, is engaged in is the most important

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Photo by Doug Stoffer, NASA/Marshall Center

Visiting 'Aunt Eunice'
NASA Administrator Sean O'Keefe, right, shares a laugh over breakfast last week at Eunice's Country Kitchen on Andrew Jackson Way with Huntsville Mayor Loretta Spencer, left, and "Aunt" Eunice Merrill, center.

O'Keefe visit

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management initiative we are engaged in, and we are all going to notice."

He said IFMP would build credibility both inside and outside NASA. "This is an opportunity to do something far greater than bean count. It's going to have a positive effect overall."

As O'Keefe looked across the auditorium, he saw Munafo a few rows from the front and repeated, "Someone notices." He began talking about the tiny cracks found in all four of the Space Shuttle orbiters, which grounded the fleet until a solution could be found to fix them. He said it was the right decision to ground the fleet.

"We will not apologize for one second for the absolute obsession with making absolutely certain we do this as safe as we know how," O'Keefe said. "An awful lot

that occurred here at Marshall speaks volumes about that commitment to safety."

O'Keefe then praised Munafo and his team's dedication toward coming up with a welding solution to the engine cracks that should put the Shuttle orbiters back on flight status.

"For that Paul, and to all of your team, we want to express our thanks and appreciation for your dedication for all of the activity you are involved in," O'Keefe said. "I would like to present Paul with the Outstanding Leadership Medal for a job exceptionally well done."

As Munafo accepted the award, the audience gave him a standing ovation and members of Munafo's team also were asked to stand and be recognized.

Munafo said, "I just wanted to say that

I wouldn't have been willing to jump in on this on July 5 if I didn't know that those people, and I'm talking about people not only from Materials and Processes, but our sister department in Structures and Mechanics, Thermal, our friends in TD and the whole infrastructure of the Center that I knew Mr. Stephenson and Mr. (Jim) Kennedy (Marshall deputy director) would make available if we did jump in. I thank all of those people for being willing to do it. I'm very grateful to them."

O'Keefe said Munafo and his team represented the "everyday examples" of the NASA family. "When the Shuttle gets back to flight, these are the heroes that (make) these kinds of things happen."

The writer, employed by ASRI, is the editor of the Marshall Star.

American Institute of Aeronautics and Astronautics, Alabama/Mississippi Section, celebrates 50 years

By Wanda Reece

The American Institute of Aeronautics and Astronautics (AIAA), Alabama/Mississippi Section, celebrated its 50th anniversary July 25 with a panel discussion AIAA leaders who have been instrumental in America's space program.

The AIAA is the major aerospace organization in the nation, and its members include aerospace leaders such as von Braun team members, and NASA, Army, and government contractor employees.

Panelists included von Braun team members Dr. Ernst Stuhlinger and Konrad Dannenberg; retired Teledyne Brown Engineering chief executive officer Joe Moquin; Marshall managers Alex McCool and Dr. Ann Whitaker; and Gen. Holger Toftoy's son-in-law — George K. Williams. The panel members discussed favorite memories from working with America's space program, the future of AIAA and their hopes for the space program.

Jim Kennedy, Marshall deputy director, read letters of congratulations from NASA Administrator Sean O'Keefe and Marshall



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Celebrating the AIAA, Ala./Miss. Section 50th anniversary are, from left, George Williams, Doris Toftoy Williams, Wanda Reece, Howell Lee, Dr. Ernst Stuhlinger, Jim Kennedy, Konrad Dannenberg, Joe Moquin, Alex McCool and Dr. Ann Whitaker.

Director Art Stephenson. Howell Lee, of U.S. Rep. Bud Cramer's office, presented a proclamation from the congressman congratulating the Section on its accomplishments during the last 50 years.

The AIAA Section's three major awards are named after Gen. Toftoy for leadership; Prof. Herrmann Oberth for scientific contributions; and Dr. Martin Schilling, the Section's first chairman, for

service to the Section.

Also honored were the AIAA Section's 50-year members, former Section chairpersons, AIAA Fellows, von Braun team members, AIAA honorary members, charter Marshall Center employees and past Marshall directors.

The writer is team lead for Pace & Waite in the Technology Transfer Department.

Five Marshall team members to be honored for Women's Equality Day

from the Equal Opportunity Office

Five outstanding women achievers from the Marshall Center will be honored Monday during Women's Equality Day ceremonies.

The Marshall Center is joining with other local federal agencies to commemorate the day beginning at 10 a.m. in Bob Jones Auditorium at the Sparkman Center. Guest speaker is Dr. Amanda Goodson, director of Safety & Mission Assurance at Marshall.

The Outstanding Women Achiever recipients from Marshall are:

- Professional - Lorna Jackson - Engineering Directorate

- Administrative - Inge Kuberg - Center Operations Directorate

- Clerical - (tie) Dawn Christian - Science Directorate and Tammy Simmons - Chief Counsel Office

- Supervisor - Dr. Amanda Goodson

Nominations were solicited and received from across the Marshall Center. The winners were ranked on total accomplishments during their entire federal careers; success of job performance and increasing responsibilities; significant accomplishments in the public sector or community interests; awards; educational level; evidence of initiative; sound judgment;

leadership; mentoring; self-development; and ability to work well with others. This is a highly coveted award since a panel of their peers individually ranked the award winners.

In 1971, Congress designated Aug. 26 as Women's Equality Day to commemorate the 1920 passage of the 19th Amendment to the Constitution, granting women the right to vote. This was the culmination of a massive, peaceful civil rights movement by women that had its formal beginnings in 1848 at the world's first women's rights convention in Seneca Falls, N.Y.

Chandra

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at the Marshall Center, was the propulsion manager for TRW when Marshall engineers decided to use the inertial upper stage system to boost the X-ray observatory to about 37,000 miles. But that was still far less than the 87,000-mile goal set for the Chandra mission.

That's when Marshall called on TRW to build a dual-mode, liquid propulsion system to work in tandem with the inertial upper stage system, Sackheim said. By using the two separate propulsion systems, the Chandra team was able to achieve the highly elliptical orbit mission goal, thus giving the X-ray telescope a better vantage point to view the universe.

The higher orbit enables Chandra to collect more data per pass, increasing the science yield and making the program more economical. But, the high end — or apogee — of Chandra's orbit would not have been possible without the help of the TRW-designed high-performance system, which used the highest performance engine available at the time, Sackheim explained.

The high-end of Chandra's orbit helps scientists at the Center who manage the program, scientists at the Smithsonian Astrophysical Observatory in Cambridge, Mass., who manage the data and control the observatory, and other scientists all over the world learn more about our universe.

There are some real scientific and technical advantages to getting a highly elliptical orbit, said Martin Weisskopf, Chandra project scientist at Marshall. "You get a much more efficient program where there are more hours of viewable data, and less time when the view is obstructed."

Aside from obstructed views, another problem engineers faced was the radiation belts that encircle the Earth, which could damage the sensitive instruments of the X-ray telescope. Using the dual propulsion system enabled engineers to place Chandra well out of harm's way.

The Boeing Company designed and built the inertial upper

stage propulsion system that propelled Chandra from the Space Shuttle Columbia's cargo bay to its initial 37,000-mile orbit.

Bob Hughes, Marshall's chief engineer for reusable launch vehicles, said the Boeing/NASA upper stage team played a major role in the Chandra project. "The team worked night and day to make sure the inertial upper stage was ready for the mission. They were exceptional."

The Chandra X-ray Observatory is a success by almost anyone's standard of measurement. Originally slated for a five-year mission, it has been extended for another five years.

Tony Lavoie, Marshall's Chandra Observatory program manager, said the data coming from the mission is groundbreaking. "It's the first time we've been able to see new and exciting details of supernovas and black holes. In a lot of cases the assumptions and the hypotheses about what's going on have to be changed because now you have these new details and they don't make sense with current models. It's really revolutionary in X-ray astronomy."

Generations of future scientists will be studying data from Chandra. This sophisticated satellite is being used to target known celestial objects, and to perform deep-field surveys — where the same patch of sky is viewed for a long time. So far, scientists have spotted objects in these deep-field surveys they do not yet understand. In many cases, even when the data gathered from Chandra answers one question, that answer leads to more questions.

Sackheim said the current mission's success could lead to another Chandra-like mission. "We've discovered the high probability of black holes. When all this data gets analyzed, the scientists at Marshall and at the Smithsonian Astrophysical Observatory will want to ask more questions about peering into where these sources are, and mapping the heavens even better. I can see another mission that goes beyond Chandra."

The writer, employed by ASRI, supports the Media Relations Department.

Procurement Office holds annual awards celebration

from the Marshall Procurement Office

Marshall's Procurement Office held its annual summer All-Hands Meeting and Awards Celebration on July 18 at Ditto Landing.

The theme of this summer's meeting was "Summer Work and Play with Health and Safety in Mind." In keeping with this theme, Steve Corgett of the American Red Cross demonstrated CPR and gave the group safety and health tips on how to beat the summer heat. Heather Day, an instructor at Marshall's Wellness Center, lead the group in stretching exercises to help them warm up for several competitive sporting events, including tennis, volleyball, basketball and horse shoes.

The following awards were presented: Twenty Year Service Award – Elaine Hamner and Dennis Parton; Dangerous Display of Initiative Award – Stan McCall, Vann Jones, Mike Sweigart and Walt Melton; Going the Extra Mile Award – Marianne Campbell, Penny Battles, James Bailey, Steve Morris, Beth Ewing, Rita Mason and Jane Maples; Great Attitude Award – Carol Terrell, Lana Fischer, Jeannette Swearingen, Thelma Collins, Ketela White, Venus Fletcher, James Young, Mike Sosebee and Terry Jones; Practicing Good Values Award – Becky LaRue, Roxanne Melton, Terry Wilkinson, Melinda Dodson, David Brock, Tammy Balch, Sam Gonzales and Dwight Clark. Safety Awareness Award – Kathy Blevins, Ron Smith, Kathy Rice, Glen Alexander and Betty McCown; and Peer Awards - Gloria Coffey, Kim Newman and Sandra Johnson.

A "Dessert Delight Contest" took place after the award presentations. First place went to Terry Ware, followed by Eunice Adams in second place and Lana Fischer in third.



Photos by Marshall Imaging Services



IFMP Expo at Marshall

Axel Roth, Marshall associate director, and other Center team members, top photo, fill out a survey during last week's Integrated Financial Management Program Expo in Bldg. 4200. The welcome booth, bottom photo, provides IFMP information for employees.



2002 volleyball team winners during the recent Procurement Office All-Hands Meeting and Awards Celebration are, from left, Jennifer McCaghren, Melinda Dodson, Tim Carson, Joseph Hobson, Mark Stiles, Jan Matthews and Brian Speers.

NASA history online

"Engines and Innovation: Lewis Laboratory and American Propulsion Technology" (SP-4306, 1991), by Virginia P. Dawson is now available on-line, according to the NASA History Office. While this book is approximately 10 years old, it is an excellent history of what is now known as NASA Glenn Research Center at Lewis Field and focuses on propulsion work, a mainstay of this center's mission. It is at <http://history.nasa.gov/SP-4306/sp4306.htm>

Annual Marshall 'Family Fun Day' crowds

The Marshall Center picnic grounds were packed Saturday during the annual "Family Fun Day." Games, contests, door prizes and food were abundant, and even though rain fell now and again, it didn't dampen the spirits of participants.

Some of the activities included a children's parade, bingo, giant slide, autograph signings by astronauts, rescue demonstrations and the Starship 2040 exhibit -- a mock-up of what a future passenger space airliner could look like.

Magicians, clowns, "Spiderman" and "Scooby Doo" also made appearances to the delight of the children. Many parents were seen trying to keep up with their youngsters as they raced from one fun-filled activity to the next.



Marshall Director Art Stephenson leads the children's parade.

Photos by Doug Stoffer and Terry Leibold, NASA/Marshall Center



Cade and Will Hamm at the duck pond. Hmm ... which one to pick?



Glenn Cruit contemplates his barbecue and beans. Howdy partner!



Shellye Duncan even enjoys the rain.



Some Marshall team members who parked in the wrong place got a rude surprise! Actually, members of the Huntsville-Madison County Rescue Squad demonstrate rescue techniques used in some automobile wrecks.

greeted with fun, games and (some) rain



Jody Singer, left, and husband Chris Singer, having their time in the dunking booth and giving a little back to those eager to "hit the target."



Yep. Giant slides are fun for Madison McBroom.



Richard Grugel and his son Rory join "Scooby Doo" and others for the children's parade.



Paul Bookout watches his son, Aaron, try his hand on the putting green.



Ashli and Jonathan Gray, from left, are ready for action inside this Bradley fighting vehicle on display.



Ryan Stover meets "Spiderman."

Advanced NDE Technique Applications for External Tank

from the Materials, Processes and Manufacturing Department

Just as digital cameras are revolutionizing photography, digital X-ray systems are modernizing non-destructive evaluation, or "NDE."

In addition to digital radiography, the NDE & Tribology Group in the Materials, Processes and Manufacturing Department has developed advanced ultrasound techniques using phased arrays. Marshall engineers are using these methods for quality control in External Tank manufacturing through the Space Shuttle Safety Upgrades programs, which includes Friction Stir Welding.

The new High Resolution Digital Radiographic (HRDR) system at Marshall is used to detect flaws in welds. The HRDR consists of an electrically controlled 125-kilovolt microfocus X-ray source and camera head, which uses a tapered fiber optic bundle to conduct light from the X-ray to light converter and then

to a Charge Coupled Device chip. The resolution is better than 10 line pairs per millimeter, which makes it comparable to X-ray film. The digital system eliminates the need for photographic chemicals and also the time delay in processing film.

Digital systems are the future of industrial radiography and Marshall is leading NASA in its implementation. Marshall NDE personnel also are working toward sharing this technology with other field centers and NASA programs. NASA is currently changing to digital X-ray in the Reusable Solid Rocket Motor program for nozzle bondlines and propellant/insulation inspections. Marshall engineers also worked with Lockheed Martin Corp. in Palo Alto, Calif., and the Michoud Assembly Facility in Louisiana to implement a production floor digital X-ray system for inspection of T-rings, domes and major External Tank welds.

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Lockheed Martin opening Huntsville CSOC Storefront

By Alan Forney

Lockheed Martin Space Operations, through its Consolidated Space Operations Contract (CSOC), is scheduled to open the second of its CSOC "storefronts" – an educational outreach program — in Huntsville.

The wide area network elements of the agency-wide CSOC are managed by the Information Services Department at the Marshall Center. Participating in the storefront are Oakwood College and Alabama A&M University, both in Huntsville.

Each storefront program involves setting up a mentoring environment near or on selected university campuses, where students are trained and hired to perform engineering work under the supervision of CSOC and one of its subcontractor companies.

"The first storefront at Prairie View A&M University, in Prairie View, Texas, employs 16 students and has been a tremendous success," said Sherm Jobe, associate program manager in Huntsville for CSOC. "We look forward to bringing to Huntsville the benefits for the students, universities and Marshall Center that the storefront represents. In addition to the direct benefits for the students of part-time employment, we have seen lower labor costs for the CSOC program and the fostering of strategic alliances with historically minority colleges and universities. It has proven to be an exceptional opportunity for CSOC, our Small Disadvantaged Businesses, NASA, the universities and the students."

Each CSOC-sponsored storefront is managed by one of the contract's Small or Disadvantaged Businesses as part of CSOC's Mentor-Protégé program.

The business involved in the Huntsville storefront is Madison Research Corp. at 401 Wynn Drive in Research Park.



Storefront students participating in the educational outreach program are, from left, Natasha Collier of Alabama A&M University, Erica Ransom of Alabama A&M, Richard Hardin of Oakwood College, Samantha Gregory of Oakwood College and Na'ieshah Reeves of Alabama A&M.

"Madison Research Corp. is thrilled to have the opportunity to sponsor the storefront program in our area," said John Stallworth, president and chief executive officer of the company. "Under our mentorship, we can provide students with real-world, corporate experience and encourage them to seriously explore the career opportunities available in the space industry upon graduation."

The Huntsville storefront official opening is Tuesday, but has already employed five students. The students began work in May performing Web page development, documentation support, cost database development, property database support, and reliability, maintainability, and availability analyses. Five more students will be hired for the 2002-2003 school year. Plans are under way to expand the storefront to 20 students for the 2003-2004 school year.

The writer is the Huntsville Storefront Project Manager and employed by Lockheed Martin

Obituaries

Currie, Robert K., 38, of Huntsville, died Aug. 5. He was an electrical engineer in the Avionics Department, ED12, at the Marshall Center.

Burial was in Maple Hill Cemetery with the Rev. Albert Pike officiating.

Currie was a graduate of the University of Alabama in Huntsville and before coming to Marshall, also had previously worked for NASA at the Kennedy Space Center, Fla. His father retired from Marshall in 1993 and Currie's brother also works at Marshall in ED12.

He is survived by his wife, Donna Currie; two daughters, Sarah Jessica Currie and Allison King Currie, both of Huntsville; his father, James Currie Sr. of Huntsville; and one brother, James Currie Jr., of Huntsville.

Goldston, Jim E., 79, of Huntsville, died Aug. 10. He retired from the Marshall Center in 1984.

He was a U.S. Army veteran of World War II and the Korean War and a member of Weatherly Assembly of God.

He is survived by his wife, Dorothy Williams Goldston; one son, Steven L. Goldston of Tallahassee; and one sister, Ruth G. Hill of Taylorsville, Miss.

Hauser, John Arnold, 81, of Decatur, died July 3. He retired from the Marshall Center in 1980.

Burial was in Decatur City Cemetery.

Hauser was born March 15, 1921, in High Point, N.C., to Avery Eugene Hauser and Nina Mae Edwards Hauser. He was a U.S. Navy World War II veteran and later served in the U.S. Navy Reserve in Korea. He was a 1948 graduate of Duke University with a bachelor's degree in mechanical engineering. After working as a mechanical engineer with both the U.S. Navy and the Air Force.

Hauser worked as a mechanical engineer and project director at the Marshall Center in a career that began in 1956. Dr. Wernher von Braun, Marshall's first director, presented him with an award for the patented invention of a gas purifying system used in development of the Saturn launch vehicle. He also received a NASA award for a patented high-pressure helium purifier used in the space program. He was a member of Tau Beta Pi and Pi Tau Sigma engineering honoraries and a member of First Presbyterian Church of Decatur.

He is survived by his wife, Betsy Hauser; one son, Gary Hauser of Ruston, La., two daughters, Barbara Miller of Macon, Ga., and Teresa Quinn of Decatur; one sister, Dee Reynolds of Roanoke, Va.; and 11 grandchildren.

Hoop, James M., 73, of Hazel Green, died Aug. 13. He retired from the Marshall Center in 1978 where he was a physicist.

Burial was in New Sharon Cemetery.

Hoop was a U.S. Air Force veteran, a member of Madison

Cross Roads Presbyterian Church and former pastor of New Sharon Church of God.

He is survived by his wife, Billie Faye Hoop; four stepsons, Michael Harrington and Gary Densmore, both of Huntsville, Ken Densmore of Hazel Green and Bob Densmore of Roanoke; two stepdaughters, Dale Harber of Taft, Tenn., and Debbie McGee of Hazel Green; 15 stepgrandchildren; and 20 great-stepgrandchildren.

McWhorter, V.E., 91, of Arab, died July 2. He retired from the Marshall Center in 1966.

Burial was in Hopewell Cemetery.

McWhorter was a welder, a member of Hopewell Baptist Church, the Arab Masonic Lodge and a member of the Huntsville Shriners.

He is survived by three sons, Kenneth McWhorter of Birmingham, and Collins McWhorter and Max McWhorter, both of Arab; two daughters, Helen Hawkins of Arab and Brenda Dyar of Scottsboro; one brother, Ralph McWhorter of Georgia; two sisters, Flora Cagle of Morgan City and Irene Hollaway of Arab; 13 grandchildren; 15 great-grandchildren; and one great-great-grandchild.

External Tank

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Another way of eliminating photographic film is the use of phosphor plate technology. As the name indicates, this method uses plates coated with a phosphor material sensitive to X-rays. The X-ray energy is converted to a visible image and stored digitally. This method can be used with existing X-ray systems.

The Space Shuttle Safety Upgrades Program includes friction stir welding, a state-of-the-art process with its own unique challenges for NDE engineers. Friction stir welds can have an anomaly – "Lack of Penetration" — that can be missed by X-ray inspection if it is less than 50-percent through-wall thickness. Phased array ultrasound has the ability to not only characterize all the volumetric anomalies that X-ray can find, but also can find Lack of Penetration anomalies down to 15-percent through-wall thickness, which is much smaller than the critical initial flaw size.

Conventional ultrasound is limited by single element, fixed angle transducers. The phased array ultrasound can be guided and focused at many angles and depths without changing probes and uses special software algorithms for improved signal to noise and higher sensitivity. The power of the new technique comes from its ability to accurately size flaws in every dimension. Utilizing the power of improved ultrasonic defect sizing on the External Tank production floor, this technique will help reduce repairs and improve safety.

For more information on these advanced NDE methods, please contact Linda Clark at (256) 544-9323 or Michael Suits at (256) 544-8336.



Photo by Doug Stoffer, NASA/Marshall Center

'LEARN' to lose weight

A group of Marshall team members recently celebrated completing the "LEARN" class for weight management at the Wellness Center, Bldg. 4315, where they lost a group-total of 181 pounds. The 16-week program, along with personal motivation, can help participants adopt a healthier lifestyle. For information, call Lana Hart, exercise physiologist/weight management leader at 544-3337. From left are Hart, Ken Fernandez who lost 43 pounds, Holly Walker who lost 10 pounds, Jeff Moore who lost 15 pounds, Tom Dollman who lost 35 pounds, Brenda Wade who lost 18 pounds, Bob Thompson who lost 30 pounds and Kathy Fleming who lost 30 pounds.

Job opportunities

- **MS02C0188**, AST, Propulsion Systems and Technologies. GS-861-14, Space Transportation Directorate, Propulsion Research Center. Competitive placement plan. Closes Aug. 23.
- **MS02C0206**, AST, Flight Systems Test. GS-861-14, Space Transportation Directorate, Subsystem & Component Development Department, Fluid Physics & Dynamics Group. Competitive placement plan. Closes Aug. 23.
- **MS02C0207**, AST, Aerospace Flight Systems. GS-861-15, Second Generation RLV Program Office, Systems Engineering and Integration Office. Competitive placement plan. Closes Aug. 23.
- **MS02C0205**, AST, Flight Systems Test Group Lead. GS-861-15, Engineering Directorate, Structures, Mechanics and Thermal Department. Competitive placement plan. Closes Aug. 23.
- **MS02C0209**, AST, Quality Assurance. GS-861-14, Safety and Mission Assurance Directorate, SR&QA Policy, Assessment & Integration Department. Competitive placement plan. Closes Aug. 26.
- **MS02C0211**, AST, Aerospace Flight Systems. GS-861-15, Flight Projects Directorate, Flight Systems Department, Environmental Control and Life Support Systems (ECLSS) Group. Competitive Placement Plan. Closes Aug. 30.

Tool allows users to influence developmental activities

from the Employee & Organizational Development Department

Next week, the Marshall Center will begin its annual training, organization development and conference needs assessment. The assessment will run from Monday-Sept. 6.

Once validated, assessment data will be used to plan and schedule Center-sponsored developmental activities. All employees are encouraged to participate in the process.

"This is a great opportunity for employees to directly shape the fiscal year 2003 Center training and organization development program," said John Heath of the Employee & Organization Development Department (EODD). "By participating in the assessment, users provide EODD and their organizations with valuable information concerning their developmental requirements and preferences. Additionally, the tool automatically creates a draft individual development plan for each participant."

This year's tool incorporates several enhancements that were recommended by a customer focus group convened earlier this year. Changes include a more comprehensive program catalog, online descriptions and a variety of new reports. Additional improvements to navigation and field descriptions have also been made.

While the tool is designed to be self explanatory, an online quick reference guide will be available. A series of overview briefing sessions has also be scheduled and posted on "Inside Marshall."

"While participating in the assessment process does not guarantee that a program will be offered locally," Heath said, "it does significantly increase the chances. If a program is scheduled, assessments participants can be contacted directly with enrollment details and are often are given priority consideration."

For additional information on the training and organization development needs assessment, call Heath at 544-2622.

ENERGY TIP

When you cozy up to a crackling fire on a cold winter day, you probably never consider that a fireplace is one of the most inefficient heat sources you can use. It literally sends your energy dollars up the chimney along with volumes of warm air. A roaring fire can exhaust as much as 24,000 cubic feet of air per hour to the outside. This air volume loss must be replaced by cold air coming into the house from the outside. How cozy does that sound to you now?

Center Announcements

Marshall Association awards scholarships

The Marshall Association has awarded its 2002 \$1,500 merit scholarships to Ebony Ervin a graduate of Buckhorn High School and Katharine Conover a graduate of Lee High School.

Miss Ervin was in the top 10 percent of her class. She will be attending Stillman College in Tuscaloosa where she will be pursuing a double major in mathematics and computer science. She is the daughter of Sarah Ervin in the Financial Management Office.

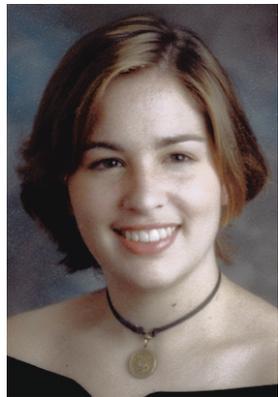
Miss Conover ranked first in her graduating class of 174. She will be attending Bard College in Annandale-on-Hudson, N.Y., where she will be majoring in theater and film. She is the daughter of Robert Minor in the Transportation Directorate.

The criteria for winning the scholarships is based on the following:

- 50 percent on academic achievement and potential, including academic record, awards, ACT/SAT scores.
- 30 percent on extracurricular and outside activities, including community involvement, employment, achievement, leadership and volunteer spirit.
- 20 percent on essay which considers the applicants vision as well as the quality of the composition.



Ervin



Conover

AMPET Conference registration now open

All Marshall team members are invited to attend the fifth Conference on Aerospace Materials, Processes and Environmental Technology (AMPET) on Sept. 16-18 at the Von Braun Center. Registration is open and must be completed by Sept. 2. Civil servants interested in attending the conference must submit a Conference Form 1265 to CD20-ITI/Linda Law. There is no charge for civil servants. The cost for contract employees is \$345 per person. Online registration and on-site registration is available for non-Marshall employees. For more information, go to <http://ampet.msfc.nasa.gov> or call Linda Law at 544-3930.

LEARN for Weight Management

Civil servants and contractors interested in finding out about a 16 week lifestyle change program called LEARN (lifestyle, exercise, attitudes, relationships, nutrition) are invited to attend an orientation at the Wellness Center in Building 4315 on Tuesday at 9 am. Spaces are limited and priority is given to civil servants who can take the class free of charge. Any remaining spaces are offered to contractors for \$30. Excused leave is granted to those participating in the class, which consists of one hour, once a week, for 16 weeks. The day and time of the class is decided upon by the class.

Shuttle Buddies to meet Monday

The Shuttle Buddies will meet for breakfast at 9 a.m. Monday at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.

Donations accepted for CFC silent auction

The Tennessee Valley Combined Federal Campaign office will conduct an online auction to raise funds for local charities during its fall campaign. The CFC office is looking for donations of

paintings, flower arrangements, collectibles, antiques, etc. For more information, call Gay Money at 876-9143 or Phyllis Henley at 842-1037.

Administrative professionals meeting Tuesday

The International Association of Administrative Professionals will hold its monthly meeting from noon-1 p.m. Tuesday at 301 Sparkman Drive, Von Braun Hall, Room M-50, at UAH. A luncheon and networking session begins at 11:30 a.m. For lunch reservations, contact Paulette Bell at bellp@email.uah.edu or for more information call Rhonda Griner at 824-6101.

Blue Cross/Blue Shield representative visit Wednesday

The federal representative from Blue Cross/Blue Shield will be at the Center from 9-11 a.m. Wednesday, Bldg. 4200, Room 329.

Washington Update is Monday with U.S. Rep. Bud Cramer

Marshall team members are invited to a Washington Update luncheon with U.S. Rep. Bud Cramer at noon Monday, Von Braun Center North Hall. The event is sponsored by the Chamber of Commerce of Huntsville-Madison County. For more information or to make reservations, call Rosa Kilpatrick at 544-0042. Cost is \$25.

Free blood pressure check

The Marshall Center now has a self-checking blood pressure machine in the Wellness Center, Bldg. 4315. All Marshall team members are welcome to use the machine.

Asian Pacific American potluck picnic set for Sunday

The annual Asian Pacific American potluck picnic begins at noon Sunday at Edgewater Clubhouse, Edgewater Drive, Madison. The event is free and for more information call Alan Chow at 544-7107 or Rolando Gentolizo at 876-2471.

Employee Ads

Miscellaneous

- ★ Horse trailer w/dressing room, bumper pull, load-leveling hitch, 2-horse, \$2,800; antique manure spreader, \$375. 778-9149
- ★ Air conditioner, 25K BTU, new motor, \$225; Kenmore washer, \$95. 837-6649
- ★ 128NB SDRAM, 168 pin, PC133, \$10 ea.; TNT2 video card, AGP, 32MB, \$20. 828-9651
- ★ Bedroom suite, dark finish, dresser w/mirror, chest, bed and rails, \$500. 256-498-6568
- ★ Baby items: swing, walkers, crib, and other items. 885-0851/Jill
- ★ Sharp Zaurus Linux PDA developer model, \$275. 776-3869
- ★ Bedroom suite: queen bed, triple dresser, door chest, 2 night stands, pecan finish, \$1,500. 256-586-7424
- ★ SeaRay boat, 16', 120HP, AM/FM cassette, 1,250 lbs., 5 hrs. use, cover & trailer, \$8,600. 256-582-5210
- ★ Dynamo pool table, all accessories, wall racks, \$1,000 obo. 256-653-3613/852-6884
- ★ Waterbed mattress, waveless, queen-size, \$100 obo. 256-771-2986
- ★ Yamaha alto sax, many accessories, case, \$650. 880-7185
- ★ ProForm 725 treadmill, \$299 obo. 895-8535
- ★ Rings: forged heart w/diamonds, \$100; 1/2-carat solitaire, \$900; guard, \$100; 1-carat solitaire, \$1,700; band, \$50. 881-4879
- ★ Baldwin console piano, \$895; Jeep Sahara, 4x4, power wheels, \$50. 971-1437
- ★ Conover cable console model piano, good key action and sound, mahogany finish, \$1,400. 859-0729
- ★ King-size water bed set, dress w/mirror, 2 nightstands, all solid wood, \$650 obo. 464-0231
- ★ Bart Starr prime fit exercise bike, \$200. 837-2792
- ★ Meade Schmidt-Cassegrain 8" telescope, quartz-controlled drive, hand controller, tripod, \$600. 931-438-1703
- ★ Alabama vs. MTSU tickets, 8/31/02, Sec. 47, East upper deck, 4 at \$40 each. 655-3065
- ★ Sears Proform 725 treadmill, \$400; 21.6 cu. ft. Amana refrigerator, \$250; 6HP Troy-Built tiller, \$400. 464-9965
- ★ 1992 Waverunner III ski w/trailer, low usage, \$2,000. 256-837-6879
- ★ 1999 Triumph Adventurer motorcycle, 6K miles, classic cruiser Triumph style, black/chrome, 855cc, 5-speed, \$6,000. 882-6728

- ★ Glass tub/shower enclosure, three panel, 5 ft., \$35. 881-4566
- ★ One ticket, U.S. Grand Prix Indianapolis, 9/29/02, Turn 1, Grandstand J, \$85 face value. 881-1249
- ★ Radio controlled 60 trainer, .75 engine, Hitec Focus, built and flying, \$250. 837-9434 after 7 p.m.
- ★ Tanning bed, hot bulbs, Sunquest Pro 24RS Wolff System w/buck booster, \$1,600. 256-739-6840
- ★ Weight bench w/10 free weights, up to 20 lbs., 2 medicine balls, theraball, \$50. 881-6016
- ★ Remington automatic 12 gauge, \$250; Franchi automatic 20 gauge, \$250; Walnut gun rack \$100. 536-4506
- ★ Office97, \$20; Frontpage98, \$15; Falcon4.0, \$10; Baldur's Gate, Civilization2 Expansion, \$7 each; Jagged Alliance2, \$5. 828-9651
- ★ Yamaha Clavinova CLP153S, 88 keys, 2 pedals, MIDI, \$1,200; Nordic Track Ellipse 910E exerciser, \$125. 830-9464
- ★ 2001 Chapparral 186ssi boat, Volvo Penta, warranty, am/fm/CD, 30 hrs., \$21,900. 881-4385

Vehicles

- ★ 1995 Ford Ranger XLT, 5-speed, 100K miles, am/fm/cassette, a/c, alloy wheels, bedliner, \$3,950 firm. 256-753-2278
- ★ 1998 Oldsmobile Cutlass GLS, white w/tan leather, 78K miles, pws/locks/seat, keyless entry, \$6,995. 431-1421
- ★ 1982 Jeep CJ5, \$2,500. 828-4502 leave message
- ★ 1994 Jeep Grand Cherokee Limited, fully loaded, \$9,995. 971-1511
- ★ 1999 Toyota Avalon XL, leather, all-power, moonroof, side airbags, CD/cassette, 63K miles, champagne, \$15,000. 880-9025
- ★ 1997 Chevrolet Silverado, black, new tires, fiberglass tonneau cover, shocks, tune-up, 63K miles, \$9,700. 216-8868
- ★ 1991 Volvo 740, auto, pw/pd, am/fm/cassette, CD, leather, heated seats, sunroof, new tires, \$5,000. 256-461-8314
- ★ 1993 Ford Taurus, power locks/windows, keyless entry, \$2,500 obo. 852-6884
- ★ 2000 Dodge Ram 1500 SLT, tow package, short wheelbase, regular cab, 42K miles, \$14,000. 881-5411
- ★ 1999 Ford 350 Diesel Dually, \$29,000 obo. 256-837-6879
- ★ 1990 Pathfinder SE, 2-door, red, 5-speed, 4WD, a/c, 168K miles, new tires, grill-guard,

- \$4,000. 256-864-3133
- ★ 1997 Chevy Blazer 2-tone green/tan, all-power, am/fm cassette, 142K miles, \$6,990. 828-3668
- ★ Chevrolet Silverado Z71 truck, extended cab, off-road package, loaded, \$22,500 obo. 830-1844
- ★ 1997 Ford Taurus LX, one-owner, 41K miles, all-power, automatic, \$5,000. 971-5990
- ★ 1994 Ford Ranger XLT, 4.0L/V6, automatic, 4x2, Super Cab, PW/PL, tow package, 94K miles, \$5,575. 895-8306

Wanted

- ★ Lead singer/rhythm guitarist interested in forming a rock band (alternative/grunge). 256-658-4774
- ★ To start a toddler play group in Mt. Carmel area. 851-9519
- ★ Ladies golf clubs and accessories. 233-0705
- ★ Trumpet in good working order for 5th grade beginner student. 837-5975
- ★ Ride to work; 7 a.m.-3:30 p.m. or 7:30 a.m.-4 p.m., will pay \$8 per day. 534-5398/544-3670
- ★ Gazelle glider. 536-8505
- ★ Quality juicer, sliding glass doors in frame, good condition. 881-0883
- ★ Full bedroom suite for teenage girl, good condition, reasonably priced. 508-0509
- ★ Old religious statues or icons of Saints, etc., in any condition. 828-6213

Found

- ★ Pocket knife, 3", outside Bldg. 4202. Call Kathy, 4-7005, to identify/claim
- ★ Blue baseball cap with shuttle mission patch. Call 544-1256 to claim/identify
- ★ Cell phone on Aug. 9, West lobby entrance, Bldg. 4203. Call Lizzie at 4-7052 to identify/claim
- ★ Money. Call 544-3623 to identify/claim

Lost

- ★ Eyeglasses, blue metal frames, at gym or in vicinity or inside Bldg. 4202. 544-3578 if found.

Free

- ★ Free to good home, three female nine-week old gray tiger-striped kittens. 882-1481

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